

# **Water Supply and Sewerage Approved Products Manual - February 2006**

## **Water Supply – Ductile Iron Pipeline System**

### **Section WPS 01**

<b>SPECIFICATIONS</b>		<b>A</b>
	WPS 01-S1	SPIGOT-SOCKET PIPES TO AS/NZS 2280
	WPS 01-S3	FLANGED PIPES TO AS/NZS 2280
	WPS 01-S4	FITTINGS TO AS/NZS 2280
	WPS 01-S5	JOINT SEALS FOR AS/NZS 2280 PIPES/FITTINGS
	WPS 01-S7	BACTERICIDAL JOINTING LUBRICANT
<b>PIPES</b>		<b>1</b>
	SPIGOT-SOCKET PIPES	1
	FLANGE-FLANGE PIPES	1
<b>BENDS</b>		<b>2</b>
	SOCKET-SOCKET BENDS	2
	SPIGOT-SPIGOT BENDS	3
	FLANGE-FLANGE BENDS	4
	SOCKET-FLANGE BENDS	5
	HYDRANT BENDS	5
	SOCKET-FLANGE WASHOUT BENDS	5
<b>TEES</b>		<b>6</b>
	SOCKET-SOCKET-SOCKET TEES	6
	SPIGOT-SPIGOT-SPIGOT TEES	8
	SPIGOT-SPIGOT-FLANGE TEES	9
	SOCKET-SOCKET-FLANGE TEES	10
	FLANGE-FLANGE-FLANGE TEES	12
	SOCKET-SOCKET FLANGE SCOUR TEES	14
	SPIGOT-SPIGOT FLANGE SCOUR TEES	14
	SOCKET-SPIGOT-FLANGE HYDRANT AND AIR VALVE TEES	15
	SPIGOT-SPIGOT-FLANGE HYDRANT AND AIR VALVE TEES	16
<b>TAPERS</b>		<b>17</b>
	SOCKET-SOCKET TAPERS	17
	SOCKET-FLANGE TAPERS	18
	SPIGOT-FLANGE TAPERS	19
	SPIGOT-SPIGOT TAPERS	20
	FLANGE-FLANGE TAPERS	21
	FLANGE-FLANGE OFFSET TAPERS	22
<b>CONNECTORS</b>		<b>23</b>
	FLANGE-SPIGOT CONNECTORS	23
	FLANGE-SOCKET CONNECTORS	23
	SOCKET-SOCKET CONNECTORS	24
	SOCKET-SOCKET PRE-TAPPED CONNECTORS	24
	SOCKET-SOCKET-FLANGE PRE-TAPPED HYDRANT TEES	25
	SOCKET-SOCKET SLIP COLLARS	25
<b>END SEALS</b>		<b>26</b>
	CAPS	26
	PLUGS	26
<b>RISERS</b>		<b>27</b>
	FLANGE-FLANGE RISERS	27

FLANGES	28
STANDARD PRESSURE BLANK FLANGES	28
HIGH PRESSURE BLANK FLANGES	28
PUDDLE FLANGES	29
DISMANTLING JOINTS	30
NON-THRUST DISMANTLING JOINTS <i>PN 16</i>	30
NON-THRUST DISMANTLING JOINTS <i>PN 35</i>	30
THRUST DISMANTLING JOINTS <i>PN16</i>	31
THRUST DISMANTLING JOINTS <i>PN35</i>	31
JOINT SEALS	32
SPIGOT-SOCKET ELASTOMERIC SEALS	32
SPIGOT-SOCKET RESTRAINING ELASTOMERIC SEALS	32
FLANGE ELASTOMERIC SEALS	33
BACTERICIDAL JOINTING LUBRICANT	33
EXTERNAL CORROSION PROTECTION	34

**WPS 01-S1 SPIGOT-SOCKET PIPES TO AS/NZS 2280**

<b>STANDARD</b>	AS/NZS 2280: 2004 Ductile iron pressure pipes and fittings
<b>DESIGN</b>	Ductile iron pipes to the Australian Standard have dimensions based on imperial sizing. As a result, the metric nominal sizing relates only roughly to the internal diameter of the pipe after cement lining. Pipe is classified by PN number based on the allowable operating pressure. Standard pressure classifications are PN20 and PN35. Other pressure classifications are allowed by AS2880:2004 and include PN16, PN25, PN30, PN40 and PN45. Allowable operating pressure of the pipe is generally not a factor in design due to the lower rating of pipe flanges and valves
<b>MATERIALS</b>	<p><b>Pipe:</b> Spheroidal graphite cast iron (commonly known as ductile iron) – manufactured from scrap ductile iron, steel, ferrosilicon, coke, limestone and magnesium</p> <p><b>Internal lining:</b> GP or SL or SR cement to AS 3972 and inert aggregate Nominal lining thickness - 5mm for DN100 to DN600 and 6mm for DN750 Minimum lining thickness - 3.5mm for DN100 to DN600 and 4.5mm for DN750</p> <p><b>External coating:</b> Bitumen to AS/NZS 3750.4 (sleeving also required) Synthetic resin base coating to AS 4089 Thermal bonded polymer to AS/NZS 4158 Other external coatings may be considered for approval</p> <p><b>Socket lining:</b> Bitumen to AS/NZS 3750.4 Synthetic resin based coating to AS 4089 Thermal bonded polymer to AS/NZS 4158 Other socket linings may be considered for approval</p> <p><b>Joint seal:</b> Approved elastomer to AS 1646.1 and 1646.2 or AS 1646.3</p>
<b>JOINTING</b>	Skid fit elastomeric sealing joint allowing minimum joint deflections of 3.5° for DN 100-250, 2.5° for DN 300-600 and 1° for DN 750. Sockets with grooves to capture elastomeric seals. Sockets and seals of proprietary profile designs (e.g. Tyton, Griptite). Spigot end to be chamfered over 10 to 20 mm at approx. 20° to pipe barrel. Witness marks at spigot end showing insertion depth for maximum angular deflection and no angular deflection. Lubricant as supplied by pipe manufacturer.
<b>EFFECTIVE LENGTH</b>	<b>Minimum:</b> 5.0 m
<b>ALLOWABLE OPERATING PRESSURE</b>	<b>PN20:</b> 2.0 MPa <b>PN35:</b> 3.5 MPa
<b>SEAL COAT</b>	Leaching of calcium from cement mortar linings can cause the pH of delivered water to exceed water quality guidelines, particularly if flow through new mains is low or mains are smaller than DN450. The provision of a seal coat over the internal surface of the cement mortar lining is strongly recommended for Darwin, Yulara and Borroloola, where water quality parameters accelerate leaching of calcium from cement mortar linings. For Adelaide River, Pine Creek and Kings Canyon, technical advice should be sought from the supplier on the requirement for a seal coat for the proposed duty. Seal coat must satisfy the requirements of ISO 16132 and AS/NZS 4020. Azko Nobel Interline 876 is currently approved for use as a seal coat.
<b>MARKINGS</b>	Manufacturer's name or mark Nominal size Classification The standard designation AS/NZS 2280 Product certification mark, e.g. StandardsMark Traceability code Place of manufacture (may be incorporated in traceability code)

## WPS 01-S1 SPIGOT-SOCKET PIPES TO AS/NZS 2280

<b>MARKING METHOD</b>	Semi-permanent marking along the pipe barrel. Lettering height not specified in AS/NZS 2280.
<b>USE LIMITS</b>	<p>Only use in tidal zones, anaerobic ground conditions and aggressive ground water when DI pipe has an external polymeric coating.</p> <p>Suitable for aboveground use, i.e. where bridging support is provided, e.g. watercourse, culvert drain and exposed bridge crossings.</p> <p>Externally coated bitumen pipes not suitable for use in extreme marine environments, seek specialist advice</p> <p>Use restraining elastomeric seals where buried service congestion prevents use of thrust blocks or ground is subject to extreme movement.</p> <p>Only use under or near DC traction systems (e.g. electric trains) with appropriate stray current insulation.</p> <p>Insulate from copper property services, including copper alloy tapping bands.</p> <p>Suitable for use as conduit pipe for high loading applications, e.g. major road crossings, shallow cover, railway crossings.</p>

**WPS 01-S3 FLANGED PIPES TO AS/NZS 2280**

<b>STANDARD</b>	AS/NZS 2280: 2004 Ductile iron pressure pipes and fittings AS 4087: 2004 Metallic flanges for waterworks purposes
<b>DESIGN</b>	Ductile iron pipes to the Australian Standard have dimensions based on imperial sizing. As a result, the metric nominal sizing relates only roughly to the internal diameter of the pipe after cement lining. Flange Class pipe has a greater wall thickness than PN20 and PN35 pipe. Allowable operating pressures for flanged pipes are governed by the pressure rating of the flanges.
<b>MATERIALS</b>	<p><b>Pipe and flanges:</b> Spheroidal graphite cast iron (commonly known as ductile iron) – manufactured from scrap ductile iron, steel, ferrosilicon, coke, limestone and magnesium.</p> <p><b>Internal lining:</b> GP or SR cement to AS 3972 and inert aggregate Nominal lining thickness - 5mm for DN100 to DN600 and 6mm for DN750 Minimum lining thickness - 3.5mm for DN100 to DN600 and 4.5mm for DN750 Thermal bonded polymer to AS/NZS 4158 Other linings may be considered</p> <p><b>External coating:</b> Bitumen to AS/NZS 3750.4 (sleeving also required) Synthetic resin based coating to AS 4089 Thermal bonded polymer to AS/NZS 4158 Other coatings may be considered for approval</p> <p><b>Flange thread seal:</b> Epoxy resin</p> <p><b>Flange gasket:</b> Elastomer to AS 1646</p>
<b>JOINTING</b>	<p><b>Standard flanges:</b> Screw-on flanges to AS 4087 figure B5 for class 16</p> <p><b>High pressure flanges:</b> Screw-on flanges to AS 4087 figure B6 for class 35</p> <p><b>Flange gasket:</b> 1.5mm and 3mm flat elastomeric full face gasket to AS 4087 for PN16 and PN35 - Appendix C, Table C1</p> <p><b>Socket and spigot:</b> Refer spigot-socket pipes specification</p>
<b>EFFECTIVE LENGTH</b>	<p><b>Maximum:</b> 5.35m</p> <p><b>Minimum:</b> No value given in reference standard or specifications</p>
<b>ALLOWABLE OPERATING PRESSURE</b>	<p><b>PN16:</b> 1.6 MPa</p> <p><b>PN35:</b> 3.5 MPa</p>
<b>MARKINGS</b>	<p>Manufacturer's name or mark</p> <p>Nominal size</p> <p>Classification</p> <p>The standard designation AS/NZS 2280</p> <p>Product certification mark, e.g. StandardsMark</p> <p>Traceability code</p> <p>Place of manufacture (may be incorporated in traceability code)</p>
<b>MARKING METHOD</b>	Semi-permanent marking along the pipe barrel. Lettering height not specified in AS/NZS 2280.
<b>USE LIMITS</b>	Use only where restrained joints are required and spigot-socket restrained joints are inappropriate.
<b>NOTES</b>	For air valve and below ground hydrant installations, use hydrant risers with integral flanges. The barrel of Flange Class pipe is tested to a pressure equal to or higher than the final pressure classification prior to fitting of flanges. Due to difficulties in restraining flanged pipe lengths during works hydrostatic tests, the completed flanged pipe may not be tested to its final pressure classification. AS 2280 requires DN100 to DN600 to be tested to 1.6 MPa or higher after flanges have been fitted, however DN750 is tested to 1.0 MPa complete with flanges.

**WPS 01-S4 FITTINGS TO AS/NZS 2280**

<b>STANDARD</b>	AS/NZS 2280: 2004 Ductile iron pressure pipes and fittings AS/NZS 4087:2004 Metallic Flanges for waterworks purposes
<b>DESIGN</b>	Ductile iron fittings to the Australian Standard have dimensions based on imperial sizing.
<b>MATERIALS</b>	<p><b>Fitting:</b> Spheroidal graphite cast iron to AS 1831 (commonly known as ductile iron) – manufactured from scrap ductile iron, steel, ferrosilicon, coke, limestone and magnesium</p> <p><b>Coating - Internal &amp; External</b> Thermal bonded polymer to AS/NZS 4158 Other coatings may be considered</p> <p><b>Joint seal:</b> Elastomer to AS 1646</p>
<b>JOINTING</b>	<p><b>Socket:</b> Sockets with grooves to capture elastomeric seals. Sockets and seals of proprietary profile designs (e.g. Tyton, Griptite). Allowable minimum joint deflections of 3.5° for DN 100-250, 2.5° for DN 300-600 and 1° for DN 750. Jointing lugs on 90° and 45° bends for sizes DN 200 and greater.</p> <p><b>Spigot:</b> End to be chamfered over 10 to 20 mm at approximately 20° to pipe barrel. Jointing lugs on 90° and 45° bends for sizes DN 200 and greater.</p> <p><b>Flange:</b> Integral flanges to AS 4087 figure B5 for PN16 and figure B6 for PN35. 1.5mm and 3mm flat elastomeric full face gasket to AS 4087 for PN16 and PN35 - Appendix C, Table C1</p>
<b>ALLOWABLE OPERATING PRESSURE</b>	<p><b>PN16:</b> 1.6 MPa</p> <p><b>PN35:</b> 3.5 MPa</p>
<b>MARKINGS</b>	<p>Manufacturer's name or mark cast on</p> <p>Nominal size</p> <p>Ductile or DI moulded in raised form</p> <p>Where applicable, the angle of the bend cast on</p> <p>The standard designation AS/NZS 2280</p> <p>Product certification mark, e.g. StandardsMark</p> <p>Traceability code</p> <p>Place of manufacture (may be incorporated in traceability code)</p>
<b>MARKING METHOD</b>	Clearly and indelibly marked on the fitting. Lettering heights and raised height not specified in AS/NZS 2280.

**WPS 01-S5 JOINT SEALS FOR AS/NZS 2280 PIPES/FITTINGS**

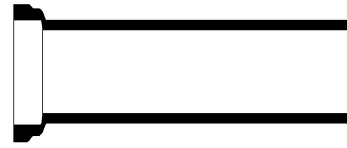
<b>STANDARD</b>	AS 1646: 2000 Elastomeric seals for waterworks purposes AS 4087: 2004 Metallic flanges for waterworks purposes
<b>SEALING DESIGN</b>	Joint seals are to be of elastomeric compounds comprising suitable polymers. The elastomers have performance properties, which deteriorate with time and as such the design of the seal's profile and the compounding of the elastomer needs to ensure long term sealing of the joint. The elastomer properties affecting long term sealing performance are hardness, rate of compression stress relaxation, water absorption, resistance to ageing, resistance to chemicals and resistance to microbiological deterioration.
<b>LATERAL RESTRAINT DESIGN</b>	An option for lateral restraint of the spigot-socket joint available for use with Tyco Water pipes is the TYTON-LOK spigot-socket joint seal. This seal has stainless steel segments moulded into it at uniform intervals around the seal ring, which lock onto the spigot wall to resist joint pull-out.
<b>COMPOUND MATERIALS</b>	<p><b>Polymer for spigot-socket rings:</b> Ethylene propylene diene monomer (EPDM), 40% minimum volume of compound for IRHD of <math>\geq 55 &lt; 85</math> Natural rubber (NR), 60% minimum volume of compound for IRHD <math>\geq 55 &lt; 85</math> Styrene Butadiene Rubber (SBR), 50% minimum volume of compound for IRHD <math>\geq 55 &lt; 85</math></p> <p><b>Polymer for flange gaskets:</b> Ethylene propylene diene monomer (EPDM), 30% minimum volume of compound for IRHD of <math>\geq 35 &lt; 55</math> or 40% minimum volume of compound for IRHD <math>\geq 55 \leq 65</math> Natural rubber (NR), 70% minimum volume of compound for IRHD <math>\geq 35 &lt; 55</math> or 60% minimum volume of compound for IRHD <math>\geq 55 \leq 65</math></p> <p><b>Antidegradant:</b> For EPDM: Not required For NR/SBR: Based on the combined antioxidant-antiozonant N-(1,3-dimethyl-butyl)-N'-phenyl-p-phenylene diamine with a concentration (m/m) of not less than 1.5 parts per hundred of polymer.</p> <p><b>Protective wax:</b> For EPDM: Not required For NR/SBR: Wax with a melting point of not less than 57°C and concentration (m/m) not greater than 3.0 parts per hundred of polymer.</p> <p><b>Filler:</b> Carbon black</p> <p><b>Copper &amp; manganese:</b> For EPDM: Not applicable For NR/SBR: Not greater than 0.0008% copper and 0.0005% manganese</p>
<b>MARKINGS</b>	<p><b>Rings:</b> Manufacturer's identification mark Cavity number, if applicable Nominal size or nominal internal and cord diameters as appropriate Year of manufacture, e.g. 01 to represent year 2001 Standard designation where the elastomeric ring is certified to AS 1646</p>
<b>MARKING METHODS</b>	Embossing with lettering $3 \pm 1$ mm high and $0.3 \pm 0.1$ mm proud of the surface; or Vulcanised transfer or permanent ink with lettering $3.5 \pm 1.5$ mm.
<b>ELASTOMER TYPE IDENTIFICATION</b>	<p><b>Marking colour:</b> EPDM: Green, NR: Plain or white, SBR: Blue</p> <p><b>Marking method:</b> Continuous durable stripe of width <math>3.5 \pm 1.5</math> mm; or Durable flash or dot of 6 mm minimum dimension</p>
<b>STORAGE</b>	<ul style="list-style-type: none"> <li>• Do not store seals in a room with any equipment capable of generating ozone (e.g. mercury vapour lamps, electric motors, high voltage equipment).</li> <li>• Store in a relaxed condition free from tension, compression or other deformation.</li> <li>• Seal temperature not to exceed 35°C and preferably not above 25°C or less than 5°C.</li> <li>• Natural rubber seals not to be continuously exposed to direct sunlight.</li> </ul>
<b>USE LIMITS</b>	<p>Do not use elastomeric seals removed from packaging for more than 3 months</p> <p>Do not use elastomeric seals older than 18 months from date of manufacture unless supplier can demonstrate that seals have been stored in a cool, controlled environment</p> <p>Do not use NR/SBR elastomeric seals older than 3 years from date of manufacture.</p> <p>Do not use EPDM elastomeric seals older than 6 years from date of manufacture.</p> <p>Do not use NR/SBR seals that have been stored unprotected from sunlight for more than 7 days.</p> <p>Do not use elastomeric seals that have been in contact with chemicals, e.g. solvents (petrol).</p>



## WPS 01-S7 BACTERICIDAL JOINTING LUBRICANT

STANDARD	AS/NZS 4020: 2005 Testing of products for use in contact with drinking water (in part)
DESIGN	<p>Jointing lubricant is to achieve the following:</p> <ul style="list-style-type: none"><li>• Provide sufficient lubrication to prevent damage to joint seals or surfaces on jointing.</li><li>• Enable correctly configured jointing when using jointing methods recommended by the pipe or fitting manufacturer.</li><li>• Not affect the elastomer or pipe or fitting materials.</li><li>• Not cause unacceptable affects on quality of potable water.</li><li>• Kill bacteria introduced into the system during the jointing operation.</li><li>• Remain an effective lubricant under wet conditions.</li><li>• Not be hazardous to handle and able to be applied by hand.</li><li>• Be completely soluble in water.</li><li>• Able to be removed under standard flushing arrangements for commissioning.</li></ul>
MATERIALS	<p><b>Lubricant:</b> Water based emulsion</p> <p><b>Bactericide:</b> As approved (proprietary information)</p>
CONTAINER MARKINGS	<p>Manufacturer's name or trademark</p> <p>Proprietary name of joint seal with which the lubricant can be used.</p> <p>The words 'Jointing Lubricant' or 'Joint Lubricant'.</p> <p>Date of manufacture.</p> <p>Date of expiry for use.</p> <p>The specification to which it complies.</p> <p>The WaterMark or other mark to certify compliance with the specification.</p> <p>Instructions for use of lubricant</p>
USE LIMITS	Do not use where past expiry date.

**SPIGOT-SOCKET PIPES**



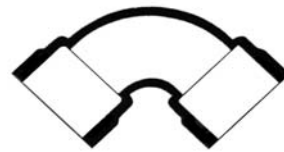
Nominal size DN	Tyco Water TytonExcel PN20	Tyco Water TytonExcel PN35
100		✓
150		✓
200		✓
225	✓	✓
250	✓	✓
300	✓	✓
375	✓	✓
450	✓	✓
500	✓	✓
600	✓	✓
750	✓	✓

**FLANGE-FLANGE PIPES**



Nominal size DN	Tyco Water
100	✓
150	✓
200	✓
225	✓
250	✓
300	✓
375	✓
450	✓
500	✓
600	✓
750	✓

**SOCKET-SOCKET BENDS**

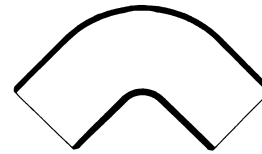


Nominal size DN x degrees	Mallet	Tyco Water	Tyco Water Auslite <sup>1</sup>	Derwent	Dobbie Dico
100 x 11.25	✓	✓	✓	✓	✓
100 x 22.5	✓	✓	✓	✓	✓
100 x 45	✓	✓	✓	✓	✓
100 x 90	✓	✓	✓	✓	✓
150 x 11.25	✓	✓	✓	✓	✓
150 x 22.5	✓	✓	✓	✓	✓
150 x 45	✓	✓	✓	✓	✓
150 x 90	✓	✓	✓	✓	✓
200 x 11.25	✓	✓		✓	✓
200 x 22.5	✓	✓		✓	✓
200 x 45	✓	✓		✓	✓
200 x 90	✓	✓		✓	✓
225 x 11.25	✓	✓		✓	
225 x 22.5	✓	✓		✓	
225 x 45	✓	✓		✓	
225 x 90	✓	✓		✓	
250 x 11.25	✓	✓		✓	✓
250 x 22.5	✓	✓		✓	✓
250 x 45	✓	✓		✓	✓
250 x 90	✓	✓		✓	✓
300 x 11.25	✓	✓		✓	
300 x 22.5	✓	✓		✓	
300 x 45	✓	✓		✓	
300 x 90	✓	✓		✓	
375 x 11.25	✓	✓		✓	
375 x 22.5	✓	✓		✓	
375 x 45	✓	✓		✓	
375 x 90	✓	✓		✓	
450 x 11.25	✓	✓		✓	
450 x 22.5	✓	✓		✓	
450 x 45	✓	✓		✓	
450 x 90	✓	✓		✓	
500 x 11.25	✓	✓		✓	
500 x 22.5	✓	✓		✓	
500 x 45	✓	✓		✓	
500 x 90	✓	✓		✓	
600 x 11.25	✓	✓		✓	
600 x 22.5	✓	✓		✓	
600 x 45	✓	✓		✓	
600 x 90	✓	✓		✓	
750 x 11.25	✓	✓			
750 x 22.5	✓	✓			
750 x 45	✓	✓			
750 x 90	✓	✓			

**NOTES**

1. Auslite fittings available in PN16 rating only

**SPIGOT-SPIGOT BENDS**

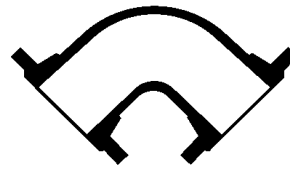


Nominal Size DN x Degrees	Mallet <sup>1</sup>	Tyco Water	Derwent
100 x 11.25	✓	✓	✓
100 x 22.5	✓	✓	✓
100 x 45	✓	✓	✓
100 x 90	✓	✓	✓
150 x 11.25	✓	✓	✓
150 x 22.5	✓	✓	✓
150 x 45	✓	✓	✓
150 x 90	✓	✓	✓
200 x 11.25	✓		✓
200 x 22.5	✓		✓
200 x 45	✓		✓
200 x 90	✓		✓
225 x 11.25	✓		✓
225 x 22.5	✓		✓
225 x 45	✓		✓
225 x 90	✓		✓
250 x 11.25	✓		✓
250 x 22.5	✓		✓
250 x 45	✓		✓
250 x 90	✓		✓
300 x 11.25	✓		✓
300 x 22.5	✓		✓
300 x 45	✓		✓
300 x 90	✓		✓
375 x 11.25	✓		✓
375 x 22.5	✓		✓
375 x 45	✓		✓
375 x 90	✓		✓
450 x 11.25	✓		✓
450 x 22.5	✓		✓
450 x 45	✓		✓
450 x 90	✓		✓
500 x 11.25	✓		✓
500 x 22.5	✓		✓
500 x 45	✓		✓
500 x 90	✓		✓
600 x 11.25	✓		✓
600 x 22.5	✓		✓
600 x 45	✓		✓
600 x 90	✓		✓
750 x 11.25	✓		
750 x 22.5	✓		
750 x 45	✓		
750 x 90	✓		

**NOTES**

1. Mallet fittings available in PN16 rating only

**FLANGE-FLANGE BENDS**

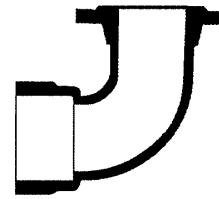


Nominal size DN x degrees	Mallet <sup>1</sup>	Tyco Water	Derwent	Tyco Water Austlite <sup>1</sup>	Dobbie Dico <sup>1</sup>
100 x 11.25	✓	✓	✓		
100 x 22.5	✓	✓	✓		
100 x 45	✓	✓	✓		
100 x 90	✓	✓	✓	✓	✓
150 x 11.25	✓	✓	✓		
150 x 22.5	✓	✓	✓		
150 x 45	✓	✓	✓		
150 x 90	✓	✓	✓		✓
200 x 11.25	✓	✓	✓		
200 x 22.5	✓	✓	✓		
200 x 45	✓	✓	✓		
200 x 90	✓	✓	✓		✓
225 x 11.25	✓	✓	✓		
225 x 22.5	✓	✓	✓		
225 x 45	✓	✓	✓		
225 x 90	✓	✓	✓		
250 x 11.25	✓	✓	✓		
250 x 22.5	✓	✓	✓		
250 x 45	✓	✓	✓		
250 x 90	✓	✓	✓		✓
300 x 11.25	✓	✓	✓		
300 x 22.5	✓	✓	✓		
300 x 45	✓	✓	✓		
300 x 90	✓	✓	✓		
375 x 11.25	✓	✓	✓		
375 x 22.5	✓	✓	✓		
375 x 45	✓	✓	✓		
375 x 90	✓	✓	✓		
450 x 11.25	✓	✓	✓		
450 x 22.5	✓	✓	✓		
450 x 45	✓	✓	✓		
450 x 90	✓	✓	✓		
500 x 11.25	✓	✓	✓		
500 x 22.5	✓	✓	✓		
500 x 45	✓	✓	✓		
500 x 90	✓	✓	✓		
600 x 11.25	✓	✓	✓		
600 x 22.5	✓	✓	✓		
600 x 45	✓	✓	✓		
600 x 90	✓	✓	✓		
750 x 11.25	✓	✓	✓		
750 x 22.5	✓	✓	✓		
750 x 45	✓	✓	✓		
750 x 90	✓	✓	✓		

**NOTES**

1. Austlite, Dobbie Dico and Mallet fittings available in PN16 rating only

**SOCKET-FLANGE BENDS**

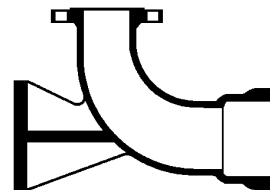


Nominal Size DN	Dobbie Dico <sup>1</sup>
100 x 80	
150 x 80	✓

**NOTES**

1. Dobbie Dico fittings available in PN16 rating only

**HYDRANT BENDS**



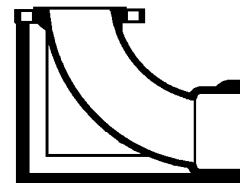
Nominal Size DN	Tyco Water	Dobbie Dico <sup>1</sup>
100 x 80	I	✓
150 x 80	I	

I = Interim approval

**NOTES**

1. Dobbie Dico fittings available in PN16 rating only

**SOCKET-FLANGE WASHOUT BENDS**



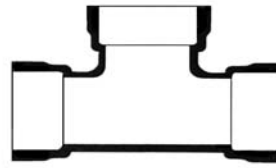
Nominal Size DN x Degree	Tyco Water	Tyco Water Auslite <sup>1</sup>	Dobbie Dico <sup>1</sup>
100 x 90	I	✓	✓
150 x 90	I		

I = Interim approval

**NOTES**

1. Auslite and Dobbie Dico fittings available in PN16 rating only

**SOCKET-SOCKET-SOCKET TEES**



Nominal Size DN x DN x dn	Mallet	Tyco Water	Tyco Water Auslite <sup>1</sup>	Derwent	Dobbie Dico
100 x 100 x 100	✓	✓	✓	✓	✓
150 x 150 x 100	✓	✓	✓	✓	✓
150 x 150 x 150	✓	✓	✓	✓	✓
200 x 200 x 100	✓	✓		✓	✓
200 x 200 x 150	✓	✓		✓	✓
200 x 200 x 200	✓	✓		✓	✓
225 x 225 x 100	✓	✓		✓	
225 x 225 x 150	✓	✓		✓	
225 x 225 x 200	✓	✓		✓	
225 x 225 x 225	✓	✓		✓	
250 x 250 x 100	✓	✓		✓	✓
250 x 250 x 150	✓	✓		✓	✓
250 x 250 x 200	✓	✓		✓	✓
250 x 250 x 225	✓	✓		✓	✓
250 x 250 x 250	✓	✓		✓	
300 x 300 x 100	✓	✓		✓	
300 x 300 x 150	✓	✓		✓	
300 x 300 x 200	✓	✓		✓	
300 x 300 x 225	✓	✓		✓	
300 x 300 x 250	✓	✓		✓	
300 x 300 x 300	✓	✓		✓	
375 x 375 x 100	✓				
375 x 375 x 150	✓				
375 x 375 x 200	✓	✓		✓	
375 x 375 x 225	✓	✓		✓	
375 x 375 x 250	✓	✓		✓	
375 x 375 x 300	✓	✓		✓	
375 x 375 x 375	✓	✓		✓	
450 x 450 x 100	✓				
450 x 450 x 150	✓				
450 x 450 x 200	✓				
450 x 450 x 225	✓				
450 x 450 x 250	✓	✓		✓	
450 x 450 x 300	✓	✓		✓	
450 x 450 x 375	✓	✓		✓	
450 x 450 x 450	✓	✓		✓	
500 x 500 x 200	✓				
500 x 500 x 225	✓				
500 x 500 x 250	✓	✓		✓	
500 x 500 x 300	✓	✓		✓	
500 x 500 x 375	✓	✓		✓	
500 x 500 x 450	✓	✓		✓	
500 x 500 x 500	✓	✓		✓	

600 x 600 x 300	✓	✓	✓
600 x 600 x 375	✓	✓	✓
600 x 600 x 450	✓	✓	✓
600 x 600 x 500	✓	✓	✓
600 x 600 x 600	✓	✓	✓
750 x 750 x 100	✓		
750 x 750 x 300	✓	✓	
750 x 750 x 375	✓	✓	
750 x 750 x 450	✓	✓	
750 x 750 x 500	✓	✓	
750 x 750 x 600	✓	✓	
750 x 750 x 750	✓	✓	

NOTES 1. Auslite fittings available in PN16 rating only



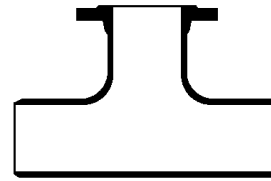
**SPIGOT-SPIGOT-SPIGOT TEES**



Nominal Size DN x DN x dn	Mallet <sup>1</sup>	Derwent
100 x 100 x 100	✓	✓
150 x 150 x 100	✓	✓
150 x 150 x 150	✓	✓
200 x 200 x 100	✓	✓
200 x 200 x 150	✓	✓
200 x 200 x 200	✓	✓
225 x 225 x 100	✓	✓
225 x 225 x 150	✓	✓
225 x 225 x 200	✓	✓
225 x 225 x 225	✓	✓
250 x 250 x 100	✓	✓
250 x 250 x 150	✓	✓
250 x 250 x 200	✓	✓
250 x 250 x 225	✓	✓
250 x 250 x 250	✓	✓
300 x 300 x 100	✓	✓
300 x 300 x 150	✓	✓
300 x 300 x 200	✓	✓
300 x 300 x 225	✓	✓
300 x 300 x 250	✓	✓
300 x 300 x 300	✓	✓
375 x 375 x 200	✓	✓
375 x 375 x 225	✓	✓
375 x 375 x 250	✓	✓
375 x 375 x 300	✓	✓
375 x 375 x 375	✓	✓
450 x 450 x 225	✓	✓
450 x 450 x 250	✓	✓
450 x 450 x 300	✓	✓
450 x 450 x 375	✓	✓
450 x 450 x 450	✓	✓
500 x 500 x 250	✓	✓
500 x 500 x 300	✓	✓
500 x 500 x 375	✓	✓
500 x 500 x 450	✓	✓
500 x 500 x 500	✓	✓
600 x 600 x 300	✓	✓
600 x 600 x 375	✓	✓
600 x 600 x 450	✓	✓
600 x 600 x 500	✓	✓
600 x 600 x 600	✓	✓
750 x 750 x 300	✓	✓
750 x 750 x 375	✓	✓
750 x 750 x 450	✓	✓
750 x 750 x 500	✓	✓
750 x 750 x 600	✓	✓
750 x 750 x 750	✓	✓

NOTES 1. Mallet fittings available in PN16 rating only

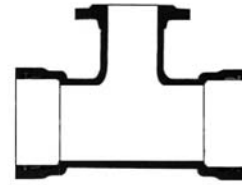
**SPIGOT-SPIGOT-FLANGE TEES**



Nominal Size DN x DN x dn	Mallet <sup>1</sup>	Tyco Water	Derwent <sup>1</sup>
100 x 100 x 100	✓	✓	✓
150 x 150 x 100	✓	✓	✓
150 x 150 x 150	✓	✓	✓
200 x 200 x 100	✓	✓	✓
200 x 200 x 150	✓	✓	✓
200 x 200 x 200	✓	✓	✓
225 x 225 x 100	✓	✓	✓
225 x 225 x 150	✓	✓	✓
225 x 225 x 200	✓	✓	✓
225 x 225 x 225	✓	✓	✓
250 x 250 x 100	✓	✓	✓
250 x 250 x 150	✓	✓	✓
250 x 250 x 200	✓	✓	✓
250 x 250 x 225	✓	✓	✓
250 x 250 x 250	✓	✓	✓
300 x 300 x 100	✓	✓	✓
300 x 300 x 150	✓	✓	✓
300 x 300 x 200	✓	✓	✓
300 x 300 x 225	✓	✓	✓
300 x 300 x 250	✓	✓	✓
300 x 300 x 300	✓	✓	✓
375 x 375 x 200	✓	✓	✓
375 x 375 x 225	✓	✓	✓
375 x 375 x 250	✓	✓	✓
375 x 375 x 300	✓	✓	✓
375 x 375 x 375	✓	✓	✓
450 x 450 x 225	✓	✓	✓
450 x 450 x 250	✓	✓	✓
450 x 450 x 300	✓	✓	✓
450 x 450 x 375	✓	✓	✓
450 x 450 x 450	✓	✓	✓
500 x 500 x 250	✓	✓	✓
500 x 500 x 300	✓	✓	✓
500 x 500 x 375	✓	✓	✓
500 x 500 x 450	✓	✓	✓
500 x 500 x 500	✓	✓	✓
600 x 600 x 300	✓	✓	✓
600 x 600 x 375	✓	✓	✓
600 x 600 x 450	✓	✓	✓
600 x 600 x 500	✓	✓	✓
600 x 600 x 600	✓	✓	✓
750 x 750 x 300	✓	✓	
750 x 750 x 375	✓	✓	
750 x 750 x 450	✓	✓	
750 x 750 x 500	✓	✓	
750 x 750 x 600	✓	✓	
750 x 750 x 750	✓	✓	

**NOTES** 1. Derwent and Mallet fittings available in PN16 rating only

**SOCKET-SOCKET-FLANGE TEES**



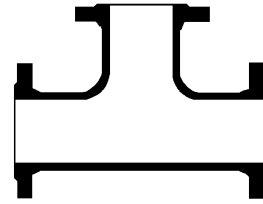
Nominal Size DN x DN x dn	Mallet <sup>1</sup>	Tyco Water	Tyco Water Auslite <sup>1</sup>	Derwent	Dobbie Dico <sup>1</sup>
100 x 100 x 80	✓	✓	✓	✓	✓
100 x 100 x 100	✓	✓	✓	✓	✓
150 x 150 x 80	✓	✓	✓	✓	✓
150 x 150 x 100	✓	✓	✓	✓	✓
150 x 150 x 150	✓	✓	✓	✓	
200 x 200 x 80	✓	✓		✓	✓
200 x 200 x 100	✓	✓		✓	✓
200 x 200 x 150	✓	✓		✓	✓
200 x 200 x 200	✓	✓		✓	
225 x 225 x 80	✓	✓		✓	
225 x 255 x 100	✓	✓		✓	
225 x 225 x 150	✓	✓		✓	
225 x 225 x 200	✓	✓		✓	
225 x 225 x 225	✓	✓		✓	
250 x 250 x 80	✓	✓		✓	✓
250 x 250 x 100	✓	✓		✓	✓
250 x 250 x 150	✓	✓		✓	✓
250 x 250 x 200	✓	✓		✓	
250 x 250 x 225	✓	✓		✓	
250 x 250 x 250	✓	✓		✓	
300 x 300 x 80	✓	✓		✓	
300 x 300 x 100	✓	✓		✓	
300 x 300 x 150	✓	✓		✓	
300 x 300 x 200	✓	✓		✓	
300 x 300 x 225	✓	✓		✓	
300 x 300 x 250	✓	✓		✓	
300 x 300 x 300	✓	✓		✓	
375 x 375 x 80	✓	✓		✓	
375 x 375 x 100	✓	✓		✓	
375 x 375 x 150	✓				
375 x 375 x 200	✓	✓		✓	
375 x 375 x 225	✓	✓		✓	
375 x 375 x 250	✓	✓		✓	
375 x 375 x 300	✓	✓		✓	
375 x 375 x 375	✓	✓		✓	
450 x 450 x 80	✓	✓		✓	
450 x 450 x 100	✓	✓		✓	
450 x 450 x 150	✓				
450 x 450 x 225	✓				
450 x 450 x 250	✓	✓		✓	
450 x 450 x 300	✓	✓		✓	
450 x 450 x 375	✓	✓		✓	
450 x 450 x 450	✓	✓		✓	

500 x 500 x 80	✓	✓	✓
500 x 500 x 100	✓	✓	✓
500 x 500 x 150	✓		
500 x 500 x 225	✓		
500 x 500 x 250	✓	✓	✓
500 x 500 x 300	✓	✓	✓
500 x 500 x 375	✓	✓	✓
500 x 500 x 450	✓	✓	
500 x 500 x 500	✓	✓	✓
600 x 600 x 80	✓	✓	✓
600 x 600 x 100	✓	✓	✓
600 x 600 x 150	✓		
600 x 600 x 300	✓	✓	✓
600 x 600 x 375	✓	✓	✓
600 x 600 x 450	✓	✓	✓
600 x 600 x 500	✓	✓	✓
600 x 600 x 600	✓	✓	
750 x 750 x 100	✓	✓	
750 x 750 x 200	✓		
750 x 750 x 225	✓		
750 x 750 x 300	✓	✓	
750 x 750 x 375	✓	✓	
750 x 750 x 450	✓	✓	
750 x 750 x 500	✓	✓	
750 x 750 x 600	✓	✓	
750 x 750 x 750	✓	✓	

**NOTES**

1. Auslite, Dobbie Dico and Mallet fittings available in PN16 rating only

**FLANGE-FLANGE-FLANGE TEES**



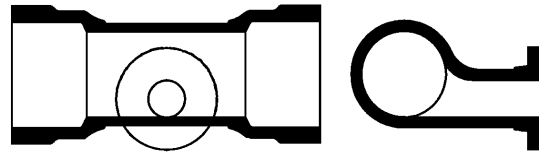
Nominal Size DN x DN x dn	Mallet <sup>1</sup>	Tyco Water	Derwent	Dobbie Dico <sup>1</sup>
100 x 100 x 80	✓			
100 x 100 x 100	✓	✓	✓	✓
150 x 150 x 80	✓			
150 x 150 x 100	✓	✓	✓	✓
150 x 150 x 150	✓	✓	✓	✓
200 x 200 x 80	✓			
200 x 200 x 100	✓	✓	✓	
200 x 200 x 150	✓	✓	✓	
200 x 200 x 200	✓	✓	✓	
225 x 225 x 80	✓			
225 x 225 x 100	✓	✓	✓	
225 x 225 x 150	✓	✓	✓	
225 x 225 x 200	✓	✓	✓	
225 x 225 x 225	✓	✓	✓	
250 x 250 x 80	✓			
250 x 250 x 100	✓	✓	✓	
250 x 250 x 150	✓	✓	✓	
250 x 250 x 200	✓	✓	✓	
250 x 250 x 225	✓	✓	✓	
250 x 250 x 250	✓	✓	✓	
300 x 300 x 80	✓			
300 x 300 x 100	✓	✓	✓	
300 x 300 x 150	✓	✓	✓	
300 x 300 x 200	✓	✓	✓	
300 x 300 x 225	✓	✓	✓	
300 x 300 x 250	✓	✓	✓	
300 x 300 x 300	✓	✓	✓	
375 x 375 x 80	✓			
375 x 375 x 100	✓			
375 x 375 x 150	✓			
375 x 375 x 200	✓	✓	✓	
375 x 375 x 225	✓	✓	✓	
375 x 375 x 250	✓	✓	✓	
375 x 375 x 300	✓	✓	✓	
375 x 375 x 375	✓	✓	✓	
450 x 450 x 250	✓	✓	✓	
450 x 450 x 300	✓	✓	✓	
450 x 450 x 375	✓	✓	✓	
450 x 450 x 450	✓	✓	✓	
500 x 500 x 100	✓			
500 x 500 x 150	✓			
500 x 500 x 200	✓			
500 x 500 x 225	✓			
500 x 500 x 250	✓	✓	✓	
500 x 500 x 300	✓	✓	✓	
500 x 500 x 375	✓	✓	✓	

500 x 500 x 450	✓	✓	✓
500 x 500 x 500	✓	✓	✓
600 x 600 x 100	✓		
600 x 600 x 150	✓		
600 x 600 x 200	✓		
600 x 600 x 225	✓		
600 x 600 x 250	✓		
600 x 600 x 300	✓	✓	✓
600 x 600 x 375	✓	✓	✓
600 x 600 x 450	✓	✓	✓
600 x 600 x 500	✓	✓	✓
600 x 600 x 600	✓	✓	✓
750 x 750 x 100	✓		
750 x 750 x 150	✓		
750 x 750 x 200	✓		
750 x 750 x 225	✓		
750 x 750 x 250	✓		
750 x 750 x 300	✓	✓	
750 x 750 x 375	✓	✓	
750 x 750 x 450	✓	✓	
750 x 750 x 500	✓	✓	
750 x 750 x 600	✓	✓	
750 x 750 x 750	✓	✓	

**NOTES**

1. Dobbie Dico and Mallet fittings available in PN16 rating only

**SOCKET-SOCKET FLANGE  
SCOUR TEES**

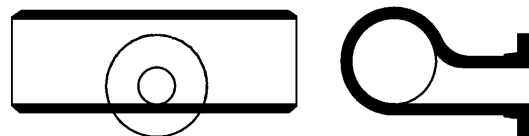


Nominal Size DN x DN x dn	Mallet <sup>1</sup>	Tyco Water	Derwent
150 x 150 x 80	✓	✓	✓
200 x 200 x 80	✓	✓	✓
225 x 225 x 100	✓	✓	✓
250 x 250 x 100	✓	✓	✓
300 x 300 x 100	✓	✓	✓
375 x 375 x 150	✓	✓	✓
450 x 450 x 150	✓	✓	✓
500 x 500 x 150	✓	✓	✓
600 x 600 x 150	✓	✓	✓
750 x 750 x 200	✓	✓	✓

**NOTES**

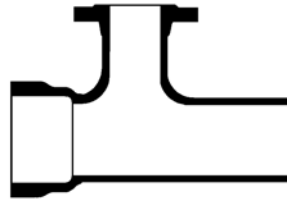
1. Mallet fittings available in PN16 rating only

**SPIGOT-SPIGOT FLANGE  
SCOUR TEES**



Nominal Size DN x DN x dn
150 x 150 x 80
200 x 200 x 80
225 x 225 x 100
250 x 250 x 100
300 x 300 x 100
375 x 375 x 150
450 x 450 x 150
500 x 500 x 150
600 x 600 x 150
750 x 750 x 200

SOCKET-SPIGOT-FLANGE  
HYDRANT AND AIR VALVE TEES



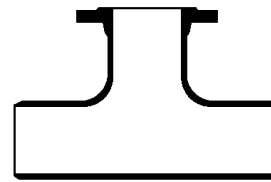
Nominal Size DN x dn x dn	Mallet <sup>1</sup>	Tyco Water	Derwent
100 x 100 x 80	✓	✓	✓
100 x 100 x 100	✓	✓	✓
150 x 150 x 80	✓	✓	✓
150 x 150 x 100	✓	✓	✓
200 x 200 x 80	✓	✓	✓
200 x 200 x 100	✓	✓	✓
225 x 225 x 80	✓	✓	✓
225 x 225 x 100	✓	✓	✓
250 x 250 x 80	✓	✓	✓
250 x 250 x 100	✓	✓	✓
300 x 300 x 80	✓	✓	✓
300 x 300 x 100	✓	✓	✓
375 x 375 x 80	✓	✓	✓
375 x 375 x 100	✓	✓	✓
450 x 450 x 80	✓	✓	✓
450 x 450 x 100	✓	✓	✓
500 x 500 x 80	✓	✓	✓
500 x 500 x 100	✓	✓	✓
600 x 600 x 80	✓	✓	✓
600 x 600 x 100	✓	✓	✓
750 x 750 x 80			
750 x 750 x 100	✓	✓	

NOTES

1. Mallet fittings available in PN16 rating only

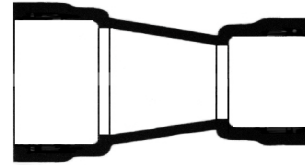


**SPIGOT-SPIGOT-FLANGE  
HYDRANT AND AIR VALVE TEES**



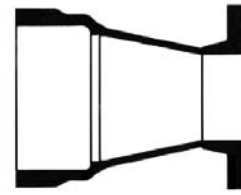
Nominal Size DN x DN x dn	Tyco Water	Derwent
100 x 100 x 80	✓	✓
100 x 100 x 100	✓	✓
150 x 150 x 80	✓	✓
150 x 150 x 100	✓	✓
200 x 200 x 80	✓	✓
200 x 200 x 100	✓	✓
225 x 225 x 80	✓	✓
225 x 225 x 100	✓	✓
250 x 250 x 80	✓	✓
250 x 250 x 100	✓	✓
300 x 300 x 80	✓	✓
300 x 300 x 100	✓	✓
375 x 375 x 80	✓	✓
375 x 375 x 100	✓	✓
450 x 450 x 80	✓	✓
450 x 450 x 100	✓	✓
500 x 500 x 80	✓	✓
500 x 500 x 100	✓	✓
600 x 600 x 80	✓	✓
600 x 600 x 100	✓	✓
675 x 675 x 80		
675 x 675 x 100	✓	
750 x 750 x 80	✓	
750 x 750 x 100	✓	

SOCKET-SOCKET TAPERS



Nominal size DN x dn	Mallet	Tyco Water	Derwent	Dobbie Dico
100 x 80	✓	✓	✓	
150 x 80	✓	✓	✓	
150 x 100	✓	✓	✓	✓
200 x 100	✓	✓	✓	✓
200 x 150	✓	✓	✓	✓
225 x 100	✓	✓	✓	
225 x 150	✓	✓	✓	
225 x 200	✓	✓	✓	
250 x 100	✓	✓	✓	✓
250 x 150	✓	✓	✓	✓
250 x 200	✓	✓	✓	✓
250 x 225	✓	✓	✓	
300 x 100	✓	✓	✓	
300 x 150	✓	✓	✓	
300 x 200	✓	✓	✓	
300 x 225	✓	✓	✓	
300 x 250	✓	✓	✓	
375 x 200	✓	✓	✓	
375 x 225	✓	✓	✓	
375 x 250	✓	✓	✓	
375 x 300	✓	✓	✓	
450 x 250	✓	✓	✓	
450 x 300	✓	✓	✓	
450 x 375	✓	✓	✓	
500 x 250	✓	✓	✓	
500 x 300	✓	✓	✓	
500 x 375	✓	✓	✓	
500 x 450	✓	✓		
600 x 300	✓	✓	✓	
600 x 375	✓	✓	✓	
600 x 450	✓	✓	✓	
600 x 500	✓	✓	✓	
750 x 375	✓	✓		
750 x 450	✓	✓		
750 x 500	✓	✓		
750 x 600	✓	✓		

SOCKET-FLANGE TAPERS

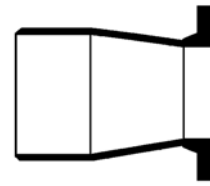


Nominal Size DN x dn	Mallet <sup>1</sup>	Tyco Water	Derwent
100 x 80	✓	✓	✓
150 x 80	✓	✓	✓
150 x 100	✓	✓	✓
200 x 100	✓	✓	✓
200 x 150	✓	✓	✓
225 x 100	✓	✓	✓
225 x 150	✓	✓	✓
225 x 200	✓	✓	✓
250 x 100	✓	✓	✓
250 x 150	✓	✓	✓
250 x 200	✓	✓	✓
250 x 225	✓	✓	✓
300 x 100	✓	✓	✓
300 x 150	✓	✓	✓
300 x 200	✓	✓	✓
300 x 225	✓	✓	✓
300 x 250	✓	✓	✓
375 x 200	✓	✓	✓
375 x 225	✓	✓	✓
375 x 250	✓	✓	✓
375 x 300	✓	✓	✓
450 x 250	✓	✓	✓
450 x 300	✓	✓	✓
450 x 375	✓	✓	✓
500 x 250	✓	✓	✓
500 x 300	✓	✓	✓
500 x 375	✓	✓	✓
500 x 450	✓	✓	✓
600 x 300	✓	✓	✓
600 x 375	✓	✓	✓
600 x 450	✓	✓	✓
600 x 500	✓	✓	✓
750 x 375	✓	✓	✓
750 x 450	✓	✓	✓
750 x 500	✓	✓	✓
750 x 600	✓	✓	✓

NOTES

1. Mallet fittings available in PN16 rating only

SPIGOT-FLANGE TAPERS

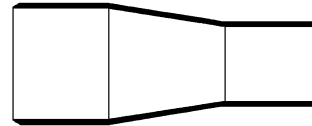


Nominal Size DN x dn	Mallet <sup>1</sup>	Tyco Water	Derwent
100 x 80	✓	✓	✓
150 x 80	✓	✓	✓
150 x 100	✓	✓	✓
200 x 100	✓	✓	✓
200 x 150	✓	✓	✓
225 x 100	✓	✓	✓
225 x 150	✓	✓	✓
225 x 200	✓	✓	✓
250 x 100	✓	✓	✓
250 x 150	✓	✓	✓
250 x 200	✓	✓	✓
250 x 225	✓	✓	✓
300 x 100	✓	✓	✓
300 x 150	✓	✓	✓
300 x 200	✓	✓	✓
300 x 225	✓	✓	✓
300 x 250	✓	✓	✓
375 x 200	✓	✓	✓
375 x 225	✓	✓	✓
375 x 250	✓	✓	✓
375 x 300	✓	✓	✓
450 x 250	✓	✓	✓
450 x 300	✓	✓	✓
450 x 375	✓	✓	✓
500 x 250	✓	✓	✓
500 x 300	✓	✓	✓
500 x 375	✓	✓	✓
500 x 450	✓	✓	✓
600 x 300	✓	✓	✓
600 x 375	✓	✓	✓
600 x 450	✓	✓	✓
600 x 500	✓	✓	✓
750 x 375	✓	✓	✓
750 x 450	✓	✓	✓
750 x 500	✓	✓	✓
750 x 525	✓	✓	✓
750 x 600	✓	✓	✓

NOTES

1. Mallet fittings available in PN16 rating only

**SPIGOT-SPIGOT TAPERS**

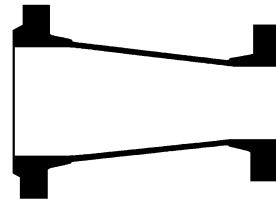


Nominal Size DN x dn	Mallet <sup>1</sup>
100 x 80	✓
150 x 80	✓
150 x 100	✓
200 x 100	✓
200 x 150	✓
225 x 100	✓
225 x 150	✓
225 x 200	✓
250 x 100	✓
250 x 150	✓
250 x 200	✓
250 x 225	✓
300 x 100	✓
300 x 150	✓
300 x 200	✓
300 x 225	✓
300 x 250	✓
375 x 200	✓
375 x 225	✓
375 x 250	✓
375 x 300	✓
450 x 250	✓
450 x 300	✓
450 x 375	✓
500 x 250	✓
500 x 300	✓
500 x 375	✓
500 x 450	✓
600 x 300	✓
600 x 375	✓
600 x 450	✓
600 x 500	✓
750 x 375	✓
750 x 450	✓
750 x 500	✓
750 x 600	✓

**NOTES**

1. Mallet fittings available in PN16 rating only

FLANGE-FLANGE TAPERS

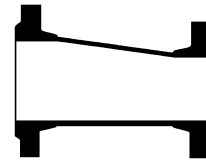


Nominal Size DN x dn	Mallet <sup>1</sup>	Tyco Water	Derwent
80 x 50			
100 x 80	✓	✓	✓
150 x 80	✓	✓	✓
150 x 100	✓	✓	✓
200 x 100	✓	✓	✓
200 x 150	✓	✓	✓
225 x 100	✓	✓	✓
225 x 150	✓	✓	✓
225 x 200	✓	✓	✓
250 x 100	✓	✓	✓
250 x 150	✓	✓	✓
250 x 200	✓	✓	✓
250 x 225	✓	✓	✓
300 x 100	✓	✓	✓
300 x 150	✓	✓	✓
300 x 200	✓	✓	✓
300 x 225	✓	✓	✓
300 x 250	✓	✓	✓
375 x 200	✓	✓	✓
375 x 225	✓	✓	✓
375 x 250	✓	✓	✓
375 x 300	✓	✓	✓
450 x 250	✓	✓	✓
450 x 300	✓	✓	✓
450 x 375	✓	✓	✓
500 x 250	✓	✓	✓
500 x 300	✓	✓	✓
500 x 375	✓	✓	✓
500 x 450	✓	✓	✓
600 x 300	✓	✓	✓
600 x 375	✓	✓	✓
600 x 450	✓	✓	✓
600 x 500	✓	✓	✓
750 x 375	✓	✓	
750 x 450	✓	✓	
750 x 500	✓	✓	
750 x 600	✓	✓	

NOTES

1. Mallet fittings available in PN16 rating only

**FLANGE-FLANGE OFFSET TAPERS**

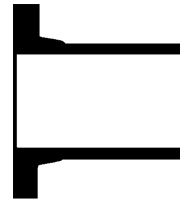


Nominal Size DN x dn	Tyco Water	Derwent	Mallet <sup>1</sup>
100 x 80	✓	✓	✓
150 x 80	✓	✓	✓
150 x 100	✓	✓	✓
200 x 100	✓	✓	✓
200 x 150	✓	✓	✓
225 x 100	✓	✓	✓
225 x 150	✓	✓	✓
225 x 200	✓	✓	✓
250 x 100	✓	✓	✓
250 x 150	✓	✓	✓
250 x 200	✓	✓	✓
250 x 225	✓	✓	✓
300 x 100	✓	✓	✓
300 x 150	✓	✓	✓
300 x 200	✓	✓	✓
300 x 225	✓	✓	✓
300 x 250	✓	✓	✓
375 x 200	✓	✓	✓
375 x 225	✓	✓	✓
375 x 250	✓	✓	✓
375 x 300	✓	✓	✓
450 x 250	✓	✓	✓
450 x 300	✓	✓	✓
450 x 375	✓	✓	✓
500 x 250	✓	✓	✓
500 x 300	✓	✓	✓
500 x 375	✓	✓	✓
500 x 450	✓	✓	✓
600 x 300	✓	✓	✓
600 x 375	✓	✓	✓
600 x 450	✓	✓	✓
600 x 500	✓	✓	✓
750 x 375	✓	✓	✓
750 x 450	✓	✓	✓
750 x 500	✓	✓	✓
750 x 600	✓	✓	✓

**NOTES**

1. Mallet fittings available in PN16 rating only

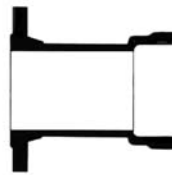
**FLANGE-SPIGOT CONNECTORS**



Nominal Size DN	Mallet <sup>1</sup>	Tyco Water	Derwent	Tyco Water Auslite <sup>1</sup>
100	✓	✓	✓	✓
150	✓	✓	✓	✓
200	✓	✓	✓	
225	✓	✓	✓	
250	✓	✓	✓	
300	✓	✓	✓	
375	✓	✓	✓	
450	✓	✓	✓	
500	✓	✓	✓	
600	✓	✓	✓	
750	✓	✓		

NOTES 1. Auslite and Mallet fittings available in PN16 rating only

**FLANGE-SOCKET CONNECTORS**

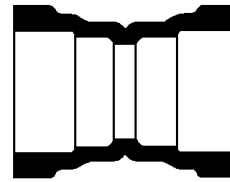


Nominal Size DN	Mallet <sup>1</sup>	Tyco Water	Derwent	Tyco Water Auslite <sup>1</sup>	Dobbie Dico <sup>1</sup>
100	✓	✓	✓	✓	✓
150	✓	✓	✓	✓	✓
200	✓	✓	✓		✓
225	✓	✓	✓		
250	✓	✓	✓		✓
300	✓	✓	✓		
375	✓	✓	✓		
450	✓	✓	✓		
500	✓	✓	✓		
600	✓	✓	✓		
750	✓	✓			

NOTES 1. Auslite, Dobbie Dico and Mallet fittings available in PN16 rating only

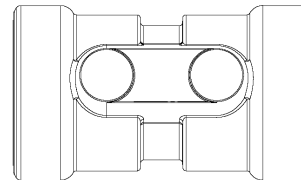


**SOCKET-SOCKET CONNECTORS**



Nominal Size DN	Mallet	Tyco Water	Derwent
100	✓	✓	✓
150	✓	✓	✓
200	✓	✓	✓
225	✓	✓	✓
250	✓	✓	✓
300	✓	✓	✓
375	✓	✓	✓
450	✓	✓	✓
500	✓	✓	✓
600	✓	✓	✓
750	✓	✓	✓

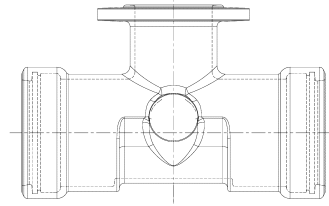
**SOCKET-SOCKET PRE-TAPPED CONNECTORS**



Nominal Size x Tapping Size x No of Tappings	Mallet	Tyco Water	Tyco Water Auslite <sup>1</sup>	Derwent
100 x 20 x2	✓			
100 x 20 x 4	✓	✓	✓	✓
100 x 25 x 2				
100 x 25 x 4				✓
100 x 50 x 1		✓		
100 x 50 x 2	✓			✓
150 x 20 x2	✓			
150 x 20 x 4	✓	✓	✓	✓
150 x 25 x 2				✓
150 x 25 x 4				
150 x 50 x 1		✓		
150 x 50 x 2	✓			✓
200 x 20 x2	✓			✓
200 x 50 x1		✓		
200 x 50 x2	✓			✓
225 x 20 x2	✓			✓
225 x 50 x1		✓		
225 x 50 x2	✓			✓
250 x 20 x2	✓			✓
250 x 50 x1		✓		
250 x 50 x2	✓			✓
300 x 20 x2	✓			✓
300 x 50 x1		✓		
300 x 50 x2	✓			✓

NOTES 1. Auslite fittings available in PN16 rating only

**SOCKET-SOCKET-FLANGE  
PRE-TAPPED HYDRANT TEES**

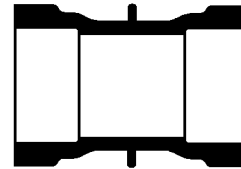


Nominal Size x Tapping Size x No of Tappings	Tyco Water Auslite <sup>1</sup> (Hydratap)
100 x 20 x2	✓
150 x 20 x2	✓

**NOTES**

1. Auslite fittings available in PN16 rating only

**SOCKET-SOCKET SLIP COLLARS**



Nominal Size DN	Tyco Water (Sliptyt)
100	✓
150	✓

**NOTES**

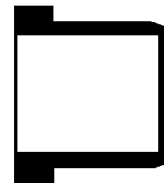
1. Sliptyt offered only with thermal bonded polymeric encapsulation utilising polyamide (nylon) being Rilsan T Blue 7411 MAC

**CAPS**



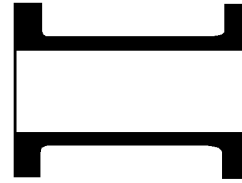
Nominal Size DN	Mallet	Tyco Water	Derwent	Dobbie Dico
100	✓	✓	✓	✓
150	✓	✓	✓	✓
200	✓	✓	✓	✓
225	✓	✓	✓	
250	✓	✓	✓	✓
300	✓	✓	✓	
375	✓	✓	✓	
450	✓	✓	✓	
500	✓	✓	✓	
600	✓	✓	✓	
750	✓	✓		

**PLUGS**



Nominal Size DN	Mallet	Derwent
100	✓	✓
150	✓	✓
200	✓	✓
225	✓	✓
250	✓	✓
300	✓	✓
375	✓	✓
450	✓	✓
500	✓	✓
600	✓	✓
750	✓	

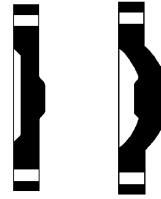
**FLANGE-FLANGE RISERS**



Nominal Size DN x Length	Mallet <sup>1</sup>	Tyco Water	Derwent	Tyco Water Auslite <sup>1</sup>	Dobbie Dico
80 x 100		✓	✓		✓
80 x 150	✓	✓	✓	✓	✓
80 x 225	✓	✓	✓	✓	✓
80 x 300	✓	✓	✓	✓	✓
80 x 375	✓	✓	✓		✓
80 x 450	✓	✓	✓		✓
80 x 525		✓	✓		
80 x 600	✓	✓	✓		
100 x 100		✓	✓		✓
100 x 150	✓	✓	✓		✓
100 x 225	✓	✓	✓		✓
100 x 300	✓	✓	✓	✓	✓
100 x 375	✓	✓	✓		
100 x 450	✓	✓	✓		✓
100 x 525		✓	✓		
100 x 600	✓	✓	✓		

NOTES 1. Auslite, Dobbie Dico and Mallet fittings available in PN16 rating only

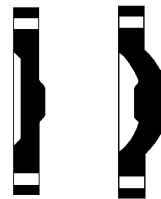
**STANDARD PRESSURE BLANK FLANGES**



Nominal Size DN	Tyco Water
100	I
150	I
200	I
225	I
250	I
300	I
375	I
450	I
500	I
600	I
750	

I = Interim approval

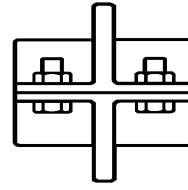
**HIGH PRESSURE BLANK FLANGES**



Nominal Size DN	Tyco Water
100	I
150	I
200	I
225	I
250	I
300	I
375	I
450	I
500	I
600	I
750	I

I = Interim approval

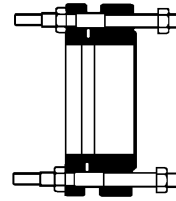
PUDDLE FLANGES



Nominal Size DN	Tyco Water
80	I
100	I
150	I
200	I
225	I
250	I
300	I
375	I
450	I
500	I
600	I
750	I

I = Interim approval

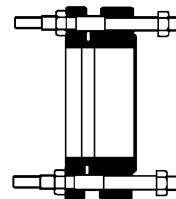
**NON-THRUST DISMANTLING JOINTS**  
*PN 16*



Nominal Size DN	Tyco Water
100	I
150	I
200	I
225	I
250	I
300	I
375	I
450	I
500	I
600	I
750	I

I = Interim approval

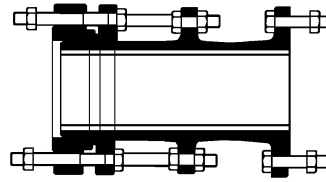
**NON-THRUST DISMANTLING JOINTS**  
*PN 35*



Nominal Size DN	Tyco Water
100	I
150	I
200	I
225	I
250	I
300	I
375	I
450	I
500	I
600	I
750	I

I = Interim approval

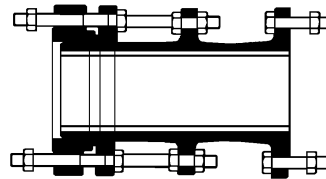
**THRUST DISMANTLING JOINTS**  
*PN16*



Nominal Size DN	Tyco Water
100	I
150	I
200	I
225	I
250	I
300	I
375	I
450	I
500	I
600	I
750	I

I = Interim approval

**THRUST DISMANTLING JOINTS**  
*PN35*

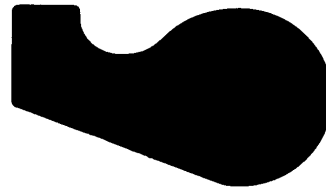


Nominal Size DN	Tyco Water
100	I
150	I
200	I
225	I
250	I
300	I
375	I
450	I
500	I
600	I
750	I

I = Interim approval



**SPIGOT-SOCKET ELASTOMERIC SEALS**

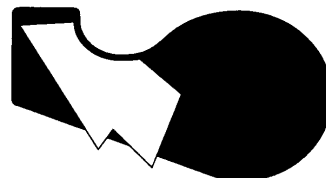


Nominal Size	Mallet	Tyco Water	Derwent	Dobbie Dico
DN	(Ludowici)	(Gulf)	(Gulf)	(Gulf)
80	✓	✓	✓	✓
100	✓	✓	✓	✓
150	✓	✓	✓	✓
200	✓	✓	✓	✓
225	✓	✓	✓	
250	✓	✓	✓	✓
300	✓	✓	✓	
375	✓	✓	✓	
450	✓	✓	✓	
500	✓	✓	✓	
600	✓	✓	✓	
750	✓	✓		

**NOTES**

1. Seal manufacturers are shown in brackets.

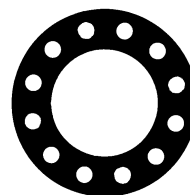
**SPIGOT-SOCKET RESTRAINING ELASTOMERIC SEALS**



Nominal Size	Tyco Water <sup>1,2</sup>
DN	(Tyton-Lok)
80	
100	✓
150	✓
200	I
225	I
250	I
300	I
375	I

I = Interim approval

**FLANGE ELASTOMERIC SEALS**



Nominal Size DN	Mallet (Ludowici)	Tyco Water (SDQ)
80	✓	✓
100	✓	✓
150	✓	✓
200	✓	✓
225	✓	✓
250	✓	✓
300	✓	✓
375	✓	✓
450	✓	✓
500	✓	✓
600	✓	✓
750	✓	✓

**NOTES**

1. Seal manufacturers are shown in brackets.

**BACTERICIDAL JOINTING LUBRICANT**



Size	Tyco Water (Thomas Grozier)
500g	✓
1kg	✓
2kg	✓
4kg	✓

**NOTES**

1. Lubricant manufacturers shown in brackets.

**EXTERNAL CORROSION PROTECTION  
POLYETHYLENE SLEEVING & PETROLATUM SYSTEM  
REFER TO SECTION WO 05 CORROSION PROTECTION**